

CLAIMS

1. A complex consisting essentially of

(a) a lipase associated with a least one C₁₆-C₂₀ monounsaturated fatty

5 acid or an ester thereof;

(b) an anionic surfactant blend;

(c) a microemulsion surfactant blend; and

(d) optionally, ethoxylated linear alcohols of C₈-C₁₁.

2. The complex of claim 1 wherein

10 said ester is a monoglyceride, a triglyceride or a diglyceride.

3. The complex of claim 1 wherein the monounsaturated C₁₆-C₂₀ fatty acid is

an oleic acid.

15 4. The complex of claim 1 wherein said fatty acid or ester is derived from a vegetable oil.

5. The complex of claim 1 wherein said lipase is a fungal lipase.

20 6. The complex of claim 4 wherein the fungal lipase is derived from a *Laetiporus*, *Ganoderma*, *Mucor*, *Rhizopus*, *Penicillium*, *Candida* or *Aspergillus*.

7. The complex of claim 6 wherein said fungal lipase is derived from *Laetiporus*.

25 8. The complex of claim 1 wherein said lipase is derived from a bacterium.

9. The complex of claim 7 wherein the lipase is derived from *Pseudomonas*, *Rhizobium* or *Chromobacterium*.

30 10. The complex of claim 1 wherein said lipase is provided in purified form.

11. The complex of claim 5 wherein the lipase is provided as a fungal culture filtrate.

5 12. The complex of claim 1 wherein at least one surfactant comprises polyalkoxy chains.

13. The complex of claim 12 wherein said polyalkoxy chains are polyethoxy chains.

10 14. The complex of claim 1 contained in a clear aqueous emulsion.

15. The complex of claim 14 wherein said emulsion has a turbidity less than 1 NTU.

16. The complex of claim 1 wherein the ratio of component (a) to surfactant is about 1:6.5-1:8.5.

17. The complex of claim 16 wherein the ratio of component (a) to surfactant is 1:7.75.

20 18. A pesticide composition comprising the complex of claim 1 in a clear aqueous emulsion.

19. A complex consisting essentially of

25 (a) a saccharide, esterified to at least one monounsaturated C₁₆-C₂₀ fatty acid;
(b) an anionic surfactant blend;
(c) a microemulsion surfactant blend; and
(d) optionally, ethoxylated linear alcohols of C₈-C₁₁.

30 20. The complex of claim 19 wherein said moiety of (a) further comprises polyalkoxy chains.

21. The complex of claim 20 wherein said polyalkoxy chains are polyethoxy chains.

5 22. The complex of claim 19 wherein said fatty acid is oleic acid.

23. The complex of claim 19 wherein said saccharide is sorbitol.

10 24. The complex of claim 19 wherein said fatty acid is derived from a vegetable oil.

25. The complex of claim 19 contained in a clear aqueous emulsion.

15 26. The complex of claim 25 wherein said emulsion has a turbidity less than 1 NTU.

27. The complex of claim 19 wherein the ratio of component (a) to surfactant is about 1:6.5-1:8.5.

20 28. The complex of claim 27 wherein the ratio of component (a) to surfactant is 1:7.75.

25 29. A pesticide composition comprising the complex of claim 19 in a clear aqueous emulsion.

30. A pesticide premix comprising the complex of claim 1.

31. A pesticide premix comprising the complex of claim 19.

30 32. A pesticide composition comprising a diluted form of the premix of claim 30.

33. A pesticide composition comprising a diluted form of the premix of
claim 31.

5 34. A method to control agricultural pests which method comprises applying
the composition of claim 32 to an area in which such control is desired.

35. A method to control agricultural pests which method comprises applying
the composition of claim 33 to an area in which such control is desired.

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36. A method to prepare a pesticide composition which method comprises
preparing a mixture of an aqueous lipase solution with an oil wherein said oil consists
essentially of triglycerides composed of C₁₆-C₂₀ monounsaturated fatty acids;

15 homogenizing said mixture to obtain an emulsion and incubating said
emulsion for a time and at a temperature sufficient to associate said lipase with said oil;
denaturing said emulsion under conditions which result in separation of
the oil and water in said emulsion;

removing solid particles if solid particles are present;

adding surfactants to the separated emulsion to obtain a resultant; and

20 homogenizing the resultant to obtain a clear aqueous microemulsion.

37. The method of claim 36 wherein said lipase is derived from a fungus.

38. The method of claim 37 wherein said fungus is *Laetiporus sulphureus*,
25 *Ganoderma*, *Pleurotus*, *Aspergillus*, *Candida*, *Mucor*, *Rhizopus* or *Penicillium*.

39. The method of claim 36 wherein said lipase is derived from a bacterium.

40. The method of claim 39 wherein said bacterium is *Pseudomonas spp* or
30 *Chromobacterium spp*.

41. The method of claim 36 wherein said lipase is derived from a plant or animal.

5 42. The method of claim 36 wherein the lipase is supplied as a fungal culture filtrate.

43. The method of claim 36 wherein said step of adding surfactant comprises adding four different surfactants.

10 44. The method of claim 43 wherein said adding surfactant comprises first adding an ethoxylated linear alcohol containing 9-11C; followed by adding an ethoxylated linear alcohol of 11C; followed by adding a surfactant blend for microemulsion formation; followed by adding an anionic surfactant or anionic surfactant blend; wherein each adding step is followed by an homogenizing step.

15 45. A method to prepare a pesticide composition which method comprises preparing an aqueous solution of a moiety having a hydrophilic core covalently bound to the backbone of at least one monounsaturated C₁₆-C₂₀ fatty acid, adding surfactants to the solution to obtain a resultant, and homogenizing the resultant to obtain a clear aqueous 20 microemulsion.

46. The method of claim 45 wherein said step of adding surfactant comprises adding four different surfactants.

25 47. The method of claim 46 wherein said adding surfactant comprises first adding an ethoxylated linear alcohol containing 9-11C; followed by adding an ethoxylated linear alcohol of 11C; followed by adding a surfactant blend for microemulsion formation; followed by adding an anionic surfactant or anionic surfactant blend; wherein each adding step is followed by an homogenizing step.

48. A dispersant/penetrant composition which composition consists essentially of

- (a) at least one linear alcohol of 7-12C which is polyalkoxylated;
- (b) at least one microemulsion enhancing component; and
- (c) at least one anionic detergent.

49. The composition of claim 1 wherein the polyalkoxylated linear alcohol has an alkoxylene:alcohol ratio of 8:1 to 2:1.

50. The composition of claim 49 wherein said ratio is 2.5:1.

51. The composition of claim 50 which further contains at least one C₁₁ alcohol with a polyalkoxylation ratio of 7:1.

52. The composition of claim 48 wherein said microemulsion-enhancing component is a blend of nonionic surfactants.

53. The composition of claim 48 wherein the anionic detergent comprises a salt of lauryl sulfate.

54. The composition of claim 48 wherein the ratio of components (a):(b):(c) is about 1-5(a): 9-15(b): 9-15(c).

55. The composition of claim 48 which is selected from the group consisting of:

- 5 parts 91-2.5, 2 parts 1-7, 12 parts H306, 12 parts 1910;
- 4 parts 91-2.5, 2 parts 1-7, 12 parts H306, 12 parts 1910;
- 6 parts 91-2.5, 2 parts 1-7, 12 parts H306, 12 parts 1910;
- 4 parts 91-2.5, 2 parts 1-7, 14 parts H306A, 12 parts 1910;
- 4 parts 91-2.5, 2 parts 1-7, 20 parts H306A, 12 parts 1910;

56. A formulation for pharmaceutical use which formulation comprises a pharmaceutically active compound and the composition of claim 48.

57. A method to administer a pharmaceutically active compound to a subject which method comprises topically applying to said subject the formulation of claim 56.

5 58. A formulation for agricultural use which formulation comprises an active ingredient at least one plant nutrient or at least one herbicide or at least one pesticide and the composition of claim 48.

59. The formulation of claim 58 which further comprises water as a diluent.

60. The formulation of claim 58 wherein said active ingredient is a plant nutrient.

61. A method to enhance the growth of a plant which method comprises applying topically to said plant the formulation of claim 60.

62. The formulation of claim 58 wherein said active ingredient is a pesticide.

63. A method to diminish the pest burden of a plant which method comprises applying topically to said plant an effective amount of the formulation of claim 62.

64. The formulation of claim 58 wherein said active ingredient is an herbicide.

65. A method for controlling weeds in a target area which method comprises applying to said target area an effective amount of the formulation of claim 64.